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January 16, 1996

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

EX PARTE

William F. Caton
Acting Secretary
Federal Communications Commission
Mail Stop 1170
1919 M Street, N.W., Room 222
Washington, D.C. 20554

Dear Mr. Caton:

Re: CC Docket No. 95-116 - Number Portability

Pacific Telesis submits the attached information in the above referenced docket. Copies will also be supplied to Matt Harthun and Phil Cheilik of the Common Carrier Bureau. Please associate these with the above proceeding.

We are submitting two copies of this notice in accordance with Section 1.1206(a)(1) of the Commission's Rules.

Please stamp and return the provided copy to confirm your receipt. Please contact me should you have any questions or require additional information concerning this matter.

Sincerely,



cc: Matt Harthun
Phil Cheilik

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CH

Release to Pivot

Presentation to the California LNP Task Force

November 9, 1995

The information contained herein is preliminary. Pacific Bell makes no representations or warranties of any nature whatsoever with respect to any information furnished herein. In particular, it should be noted that national standards regarding the subject matter may not exist, and are furthermore subject to change. Pacific Bell makes no commitment to purchase, or standardize any products or services utilizing this information.

Outline

- Desirable features for LNP
- RTP Description
- RTP Call Flows
- Signaling Requirements
- Summary

Desirable Features for LNP

- Should only apply to ported Directory Numbers (DN)
 - Non-ported numbers should not be impacted
- No negative impact to number exhaust.
- Should be designed for both Local and IEC networks.
- Should not preclude other network providers from deploying other solutions.
 - The information that is passed at the network interface should be standard for all service provider number portability alternatives.

Desirable Features for LNP

- Should minimize impacts on network elements
- Should leverage off of existing network features and infrastructure
- Should only require queries for calls to ported numbers
- Should use a single numbering domain

Desirable Features for LNP

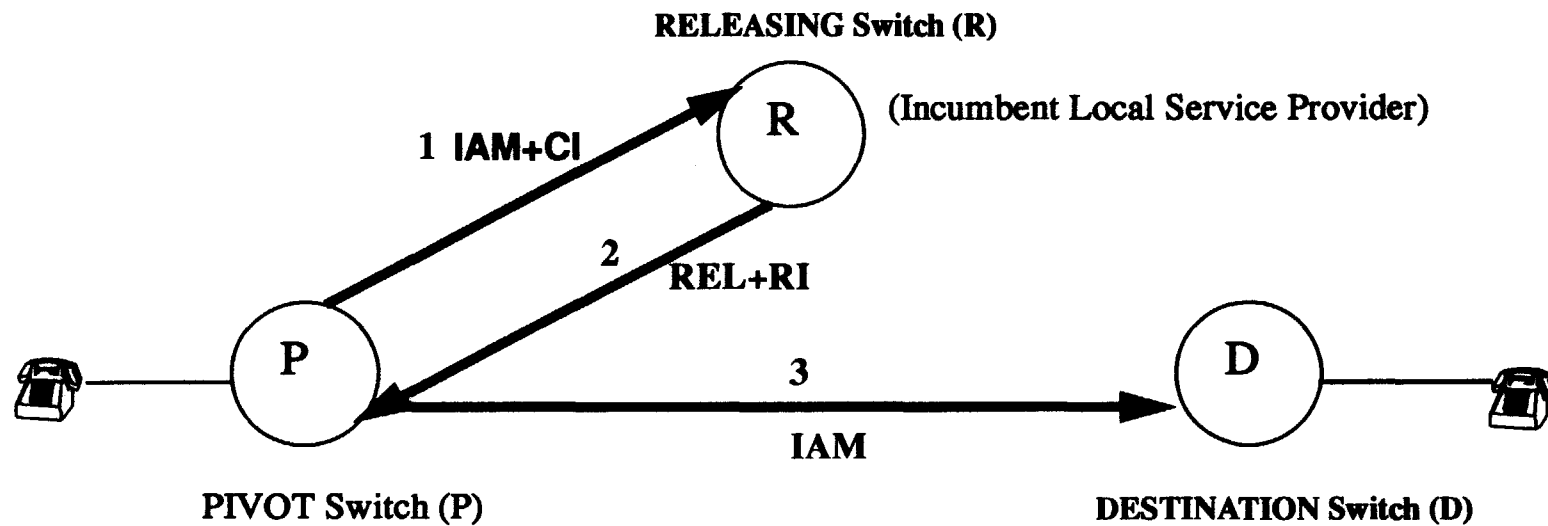
- Should provide for ubiquitous number portability in a given area of number portability
- Should provide fail-safe routing of calls in the event of failures

Release to Pivot (RTP)

- Generic network capability that is invoked to support service needs; not directly invoked by the end users.
- The RTP capability can be provisioned on a per Switch, per Point Code, or per Trunk Group basis.
- An RTP switch may simultaneously process some calls using its Pivoting functionalities and other calls using its Release functionalities.
- Requirements are documented in Bellcore publication GR-2857-CORE. Pacific Bell has amended GR-2857-CORE with LNP-specific draft requirements.

BASIC OPERATION OF RTP ROUTING

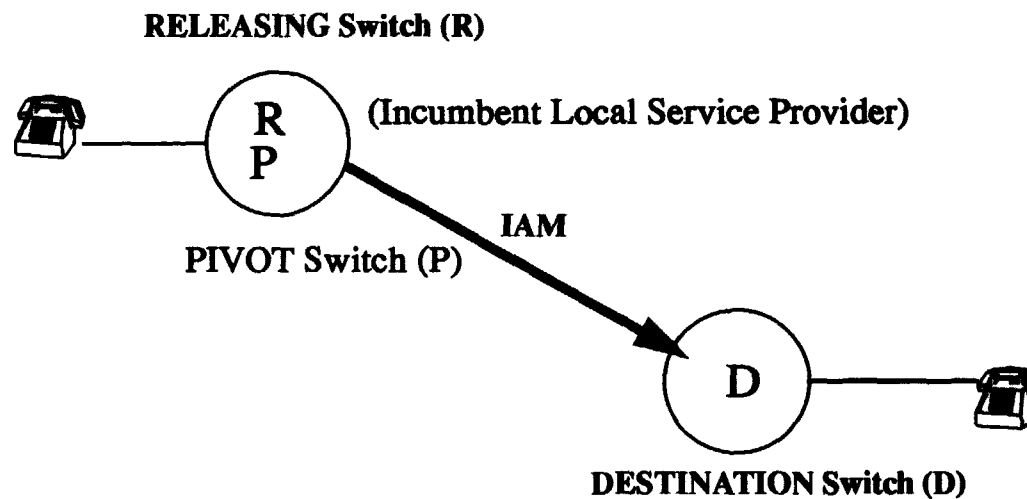
SS7 Signaling



IAM = Initial Address Message
CI = Capability Indicator
RI = Rerouting Information

BASIC OPERATION OF RTP ROUTING

Releasing Switch = Pivot Switch



Single Number Routing Mechanisms

- **Carrier Identification Codes**
 - Requires minimal changes in signaling parameters and values
 - Possible ambiguity in routing
- **Location Routing Number (LRN)**
 - 10 digit number that uniquely identifies a switch in the network
 - Uses existing methods to route calls through the network
 - No ambiguity in routing
 - Requires processing at terminating switch to determine original called number
- **Therefore, LRN is recommended as a routing mechanism**

SS7 ISUP Protocol

- **RTP only requires ISUP messaging for call setup**
- **Changes required in Initial Address Message:**
 - Capability Indicator (CI) - New optional parameter**
 - Forward Call Indicator (FCI) - New value**
 - Generic Address Parameter (GAP)**
 - Location Routing Number (LRN)**
- **Changes required in Release Message**
 - New cause value (RTP)**
 - Rerouting Information**
- **All of the above changes have been introduced to ANSI standards body T1S1.**

RTP ROUTING CAPABILITY: IAM + CI as proposed in GR-2857-CORE

IAM Message

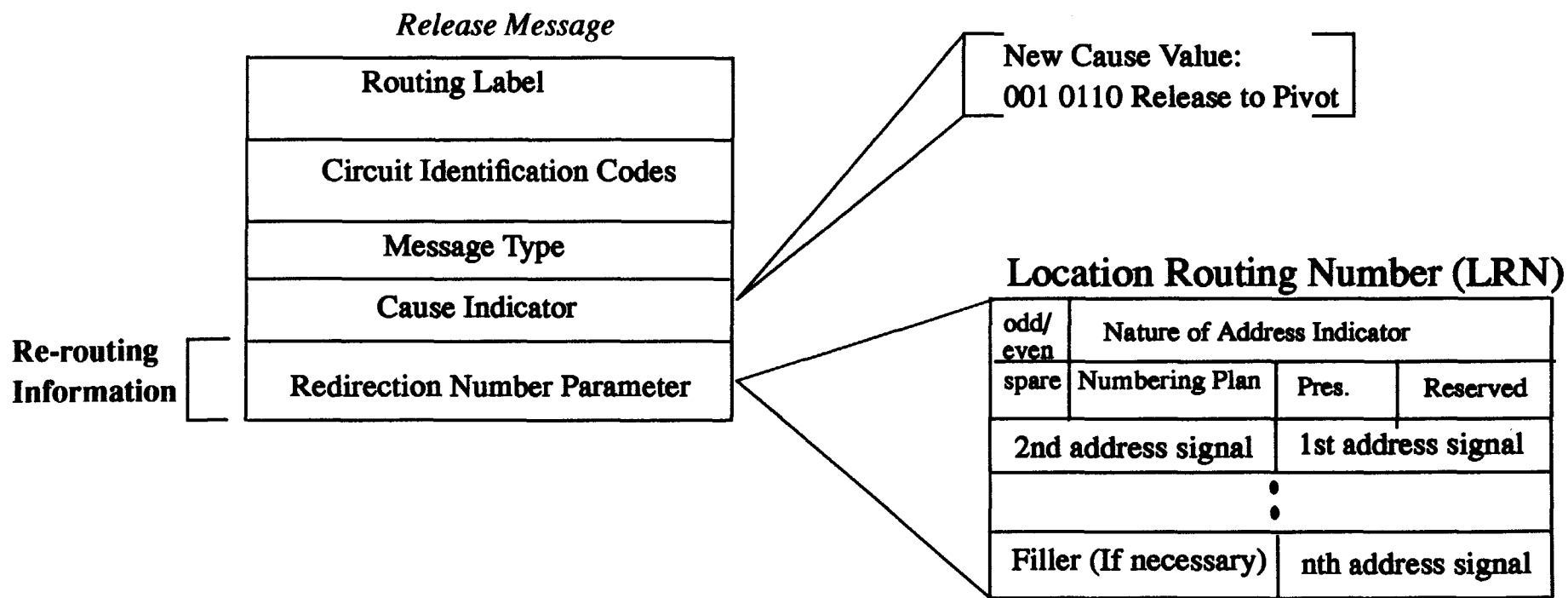
Routing Label
Circuit Identification Codes
Message Type
Mandatory Parameters (e.g., Nature of connection indicator and Called Party Number)
Optional Parameters (e.g., Calling Party Number and Transit Network Selection)

1	2	3	4	5	6	7	8
Capability Indicator							

0000 0011
Other

RTP Allowed
Reserved or Spare

RTP ROUTING CAPABILITY: REL + RI (Rerouting Info)



IAM with LRN

IAM Message

Routing Label
Circuit Identification Codes
Message Type
Mandatory Parameters (e.g., Nature of connection indicator and Called Party Number)
Optional Parameters (e.g., Calling Party Number and Generic Address Parameter)

Forward Call Indicator

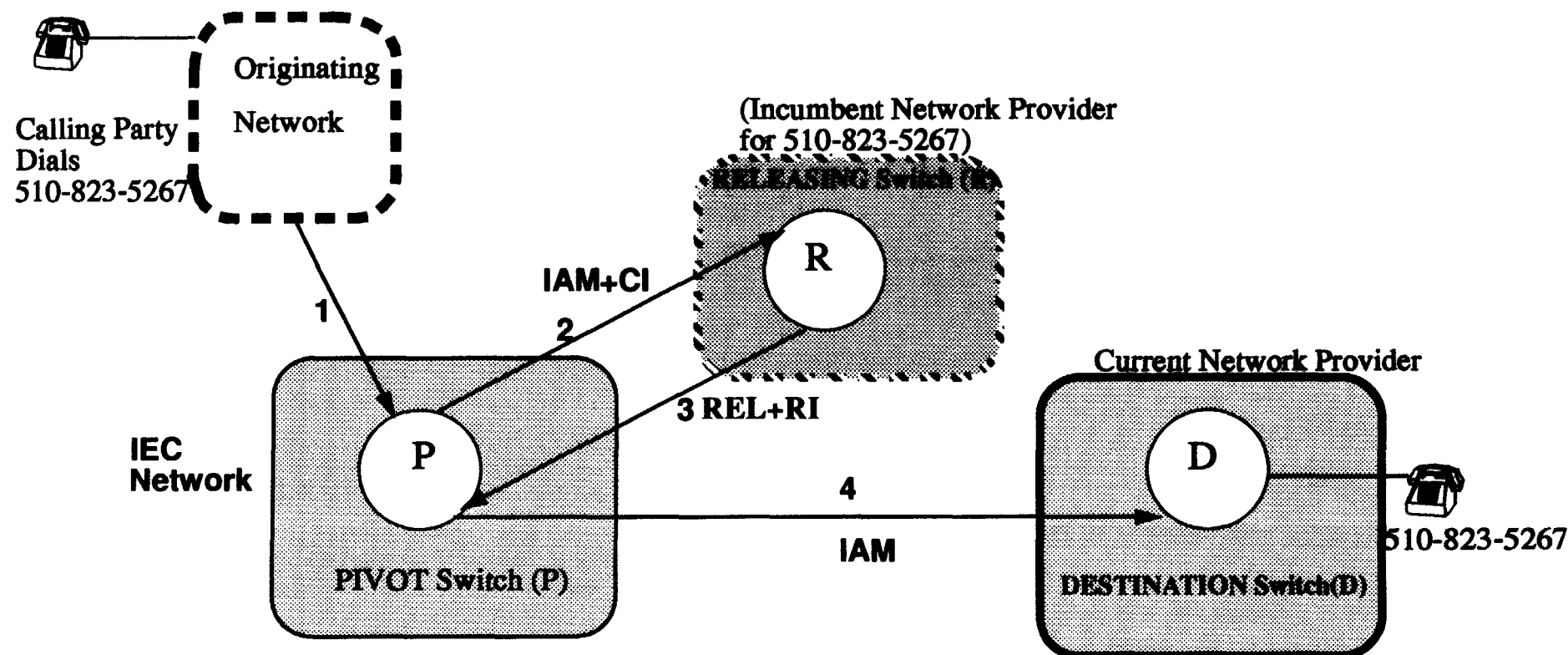
Called Party Number (CdPN)

odd/ even spare	Nature of Address Indicator		
	Numbering Plan	Pres.	Reserved
	2nd address signal	1st address signal	
		:	
	Filler (If necessary)	nth address signal	

Generic Address Parameter (GAP)

Type of Address			
odd/ even spare	Nature of Address Indicator		
	Numbering Plan	Pres.	Reserved
	2nd address signal	1st address signal	
		:	
	Filler (If necessary)	nth address signal	

InterLATA Example of RTP ROUTING

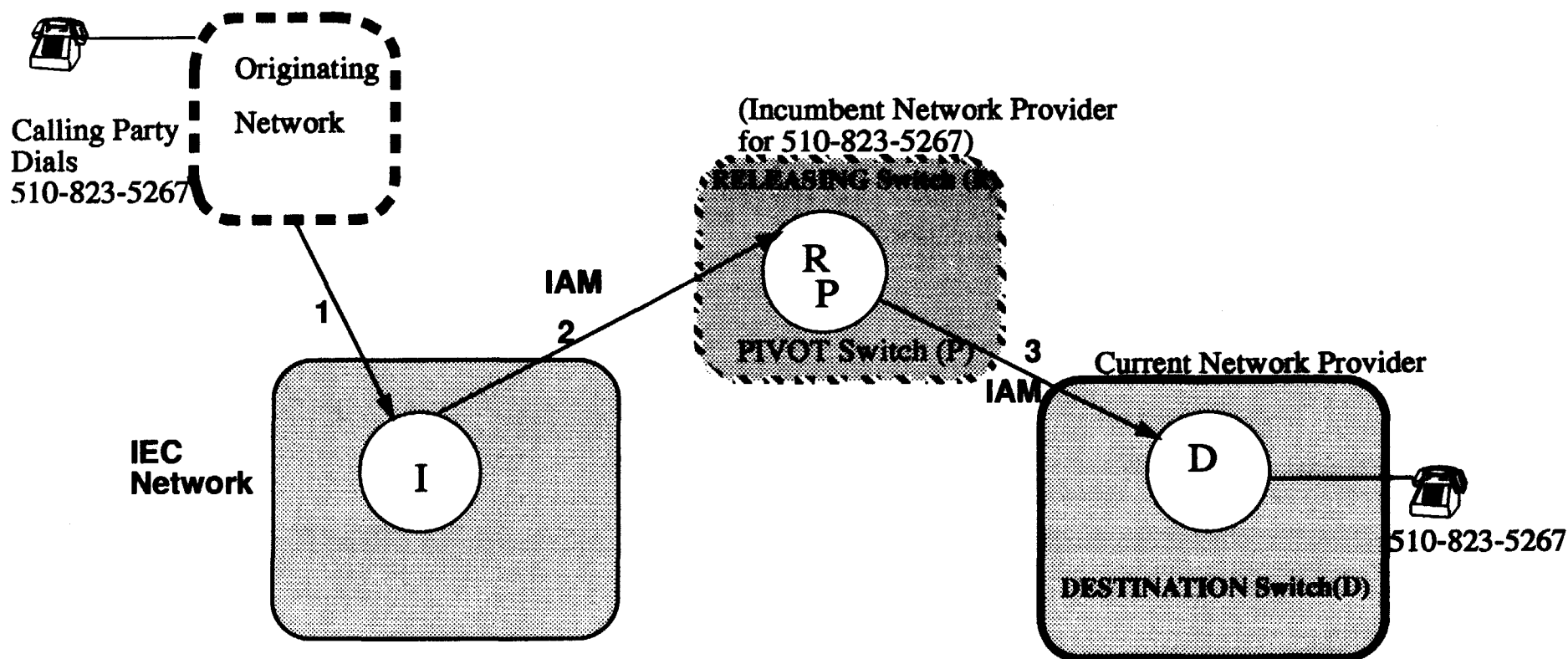


Call Flow:

1. Originating Network hands call to IEC network based on PIC.
2. IAM + CI sent from switch P to switch R indicating P is RTP capable.
3. Switch R sends a REL + RI to switch P with LRN and cause indicator = RTP.
4. Switch P sends IAM to switch D

CI = Capability Indicator
RI = Rerouting Information

Another InterLATA Example of RTP ROUTING

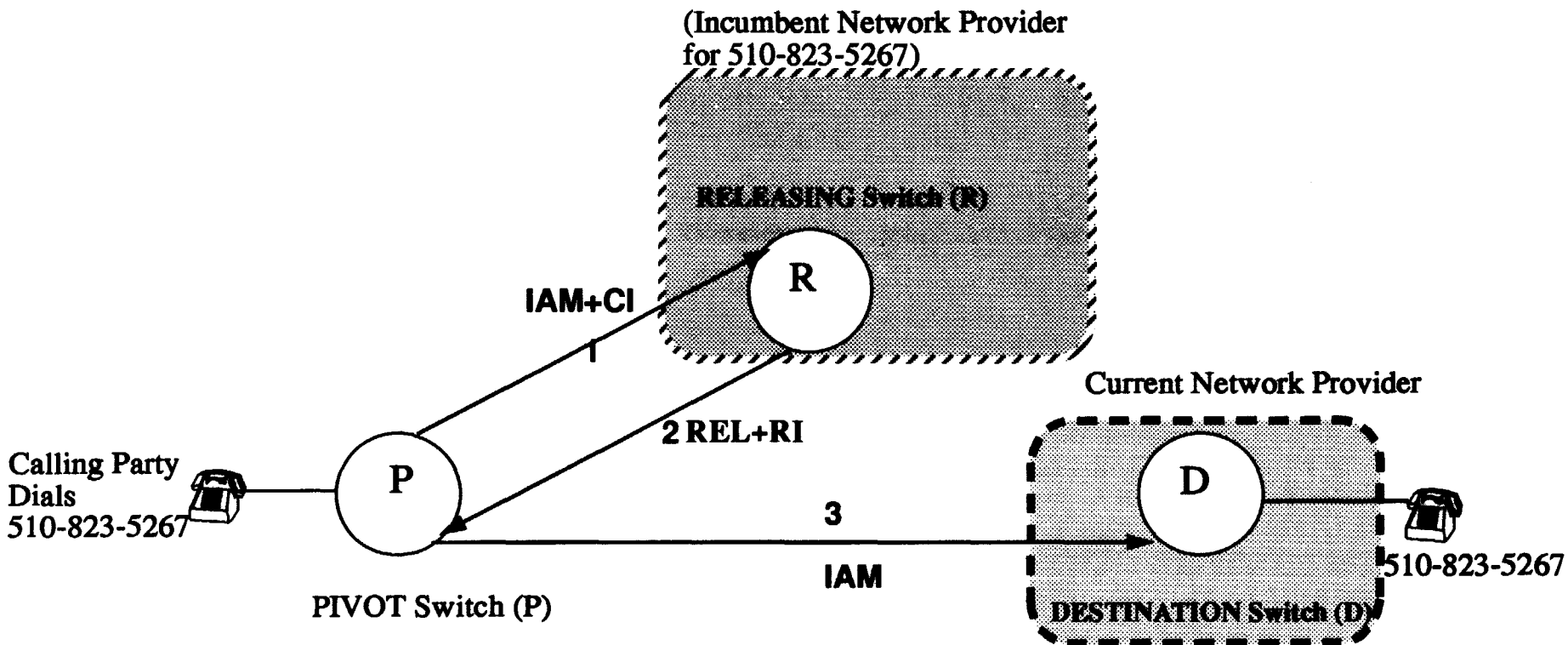


Call Flow:

1. Originating Network hands call to IEC network based on PIC.
2. IAM sent from switch I to switch R.
3. Switch R releases to itself, and is the pivot switch (P).
4. Switch P sends IAM to switch D

CI = Capability Indicator
RI = Rerouting Information
IAM = Initial Address Message

IntraLATA Example of RTP ROUTING



Call Flow:

Originating Network hands call to network based on DN.

1. IAM + CI sent from switch P to switch R indicating P is RTP capable.

2. Switch R sends a REL + RI to switch P with LRN and cause indicator = RTP.

3. Switch P sends IAM to switch D

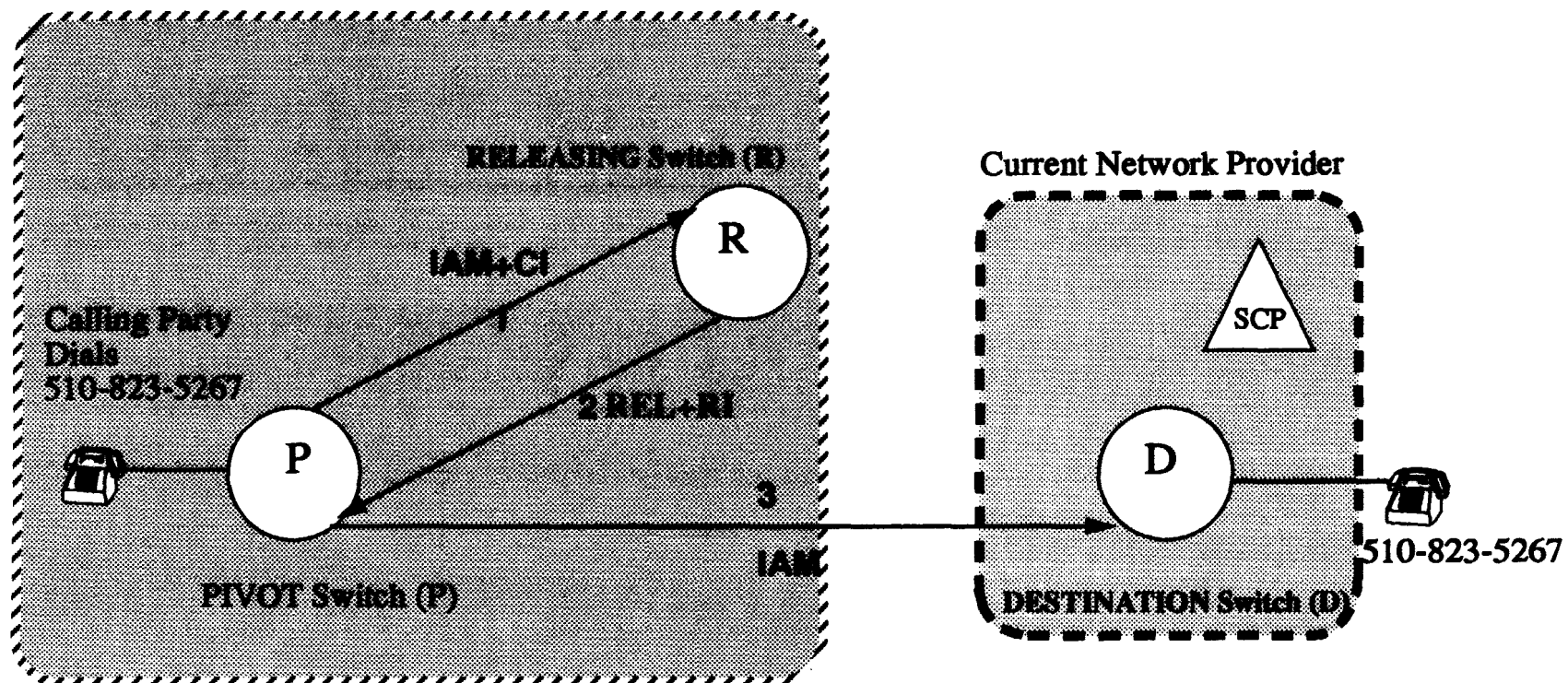
IAM = Initial Address Message

CI = Capability Indicator

RI = Rerouting Information

IntraLATA Example of RTP ROUTING

(Incumbent Network Provider
for 510-823-5267)



Call Flow:

Originating Network hands call to network based on DN.

1. IAM + CI sent from switch P to switch R indicating P is RTP capable.
2. Switch R sends a REL + RI to switch P with LRN and cause indicator = RTP.
3. Switch P sends IAM to switch D with LRN in the CdPN and FCI set to "number translated"

Why RTP?

Technically feasible and leverages off of existing network infrastructure

-Doesn't require AIN/IN capability or resources

Doesn't require addition of SCPs for call routing

Non-ported customers should not be impacted by number portability

Cost of calls to non-ported numbers should not be negatively impacted

Requirements are complete for ISUP changes and standards work has begun

Why RTP?

- **Network Impact of Number Portability must be minimized**
 - **Alternatives that query all calls have huge impact on the network**
 - **Require additional SS7 links, STPs, and SCPs**
- **Only calls to ported numbers are handled differently than today**
- **Industry should work to establish a standard interface so that service providers can offer service in a truly competitive environment**

Why single number domain?

- Ensures that proper calling number is forwarded through the network
- Ensures that proper called number is forwarded through the network
- No numbering ambiguity for calls to PBXs
- No ambiguity for billing systems
- No negative impact to NANP resources

Why LRN?

- Can be used to unambiguously route calls
- Requires no changes to existing routing methods
 - EO to EO
 - EO to TDM to EO
- Same format as NANP numbers
- Can be used as a standard interface between networks
 - Common network architecture among service providers is not required

10 Digit Global Title Translations

- Required to support CLASS and ABS/LIDB in a number portability environment
- Can be achieved at either the STP or SCP
 - Most STPs presently available could not meet the 10 digit GTT entries required with LNP

SMS Issues

- **Facilitates communication between service providers in a LNP environment**
- **Each service provider will have to build an interface to an industry SMS**
- **SMS will probably be deployed on a regional basis**
- **RTP will use existing provisioning systems to update switches**

Summary:

- True Service Provider Number Portability
 - Customers retain the original directory number
 - Networks route using a Location Routing Number.
 - Only applies to ported Directory Numbers
- Only requires ISUP messages for call setup
 - Minimizes effect on SS7 network
- 1 query per ported call
- No negative impact to number exhaust